

# Claims

- [c1] 1. A configurable real time data processor arranged to provide a display data stream to a display unit having an associated set of display attributes, comprising:
- a number of ports each of which is configured to receive an input data stream;
  - a format converter unit coupled to one of the ports arranged to convert a corresponding input data stream to a progressive type data stream, if needed;
  - a number of adaptive image converter units each coupled an associated one of the ports suitable for converting a corresponding input data stream to a corresponding converted data stream having associated converted data stream attributes;
  - an image compositor unit arranged to combine the converted data streams to form a composited data stream;
  - an image enhancer unit arranged to enhance the composited data stream to form an enhanced data stream;
  - a display unit interface arranged process the enhanced data stream to form the display data; and
  - a memory unit bi-directionally coupled to each of the

image converter units and the image compositor arranged to store selected portions of selected ones of the data streams from the image converter units and to provide the selected portions to the image compositor as needed.

- [c2] 2. A configurable real time data processor as recited in claim 1, further comprising:
  - a progressive scan timing generator arranged to provide a progressive scan timing signal to the converter units such that the converted data streams are progressive scan type data streams.
- [c3] 3. A configurable real time data processor as recited in claim 1, further comprising:
  - a de-interlacing unit coupled to the format converter unit arranged to de-interlace an interlaced type video stream as needed.
- [c4] 4. A configurable real time data processor as recited in claim 2, wherein the converter unit further comprises:
  - a frame rate conversion unit arranged to synchronize each converted data stream to a display frame rate.
- [c5] 5. A configurable real time data processor as recited in claim 4, wherein the display frame rate is locked to a selected frame rate.

- [c6] 6. A configurable real time data processor as recited in claim 5, wherein the locked frame rate corresponds to one of the incoming data streams.
- [c7] 7. A configurable real time data processor as recited in claim 5, wherein the display frame rate is a free running frame rate.
- [c8] 8. A configurable real time data processor as recited in claim 1, wherein the ports include,
  - a video receiver port arranged to receive video data;
  - a user interface port arranged to receive user input commands; and
  - a network interface arranged bi-directionally connected to a network arranged to transceive packet based data to and from the network.
- [c9] 9. A configurable real time data processor as recited in claim 1, wherein the data processor is an integrated circuit.
- [c10] 10. A configurable data processor as recited in claim 1, wherein the display attributes are Extended Display Identification Data (EDID).
- [c11] 11. A configurable real time video processor as recited in claim 6, wherein the display interface further comprises:

an interlacer unit arranged to interlace a progressive scan image when the display unit is an interlaced type display unit; and  
a progressive scan bypass unit arranged to bypass the interlacer when the display unit is a progressive scan type display unit.

- [c12] 12. A method of adaptively providing a data stream to a display unit having an associated set of display attributes, comprising:
- receiving a number of input data streams at a number of corresponding input ports;
  - converting the input data streams to a corresponding converted data stream having associated converted data stream attributes;
  - compositing the converted data streams by an image compositor;
  - enhancing the composited data stream; and
  - processing the enhanced data stream for display on the display unit.
- [c13] 13. A method as recited in claim 12, further comprising:  
providing a progressive scan timing signal such that the converted data streams are progressive scan type data streams.
- [c14] 14. A method as recited in claim 12, further comprising:

storing selected portions of selected ones of the data streams in a memory unit; and  
providing the selected portions to the image compositor as needed.

[c15] 15. A method as recited in claim 13, further comprising:  
synchronizing each converted data stream to a display frame rate.

[c16] 16. A method as recited in claim 15, further comprising:  
locking the display frame rate to a selected frame rate.

[c17] 17. A method as recited in claim 16, wherein the locked frame rate corresponds to one of the incoming data streams.

[c18] 18. A method as recited in claim 15, wherein the display frame rate is a free running frame rate.

[c19] 19. A method as recited in claim 12, wherein the ports include,  
a video receiver port arranged to receive video data;  
a user interface port arranged to receive user input commands; and  
a network interface arranged bi-directionally connected to a network arranged to transceive packet based data to and from the network.

- [c20] 20. A method as recited in claim 12, wherein the data processor is an integrated circuit.
- [c21] 21. A method as recited in claim 12, wherein the display attributes are Extended Display Identification Data (EDID).
- [c22] 22. A method as recited in claim 21, further comprising:  
interlacing a progressive scan video image when the display unit is an interlaced type display unit; and  
bypassing the interlacing when the display unit is a progressive scan type display unit.
- [c23] 23. Computer program product for adaptively providing a data stream to a display unit having an associated set of display attributes, comprising:  
computer code for receiving a number of input data streams at a number of corresponding input ports;  
computer code for converting the input data streams to a corresponding converted data stream having associated converted data stream attributes;  
computer code for compositing the converted data streams by an image compositor;  
computer code for enhancing the composited data stream;  
computer code for processing the enhanced data

stream for display on the display unit; and  
computer readable medium for storing the computer code.

[c24] 24. Computer program product as recited in claim 23,  
further comprising:  
computer code for providing a progressive scan timing signal such that the converted data streams are progressive scan type data streams.

[c25] 25. Computer program product as recited in claim 23,  
further comprising:  
computer code for storing selected portions of selected ones of the data streams in a memory unit;  
and  
computer code for providing the selected portions to the image compositor as needed.

[c26] 26. Computer program product as recited in claim 24,  
further comprising:  
computer code for synchronizing each converted data stream to a display frame rate.

[c27] 27. Computer program product as recited in claim 26,  
further comprising:  
computer code for locking the display frame rate to a selected frame rate.

- [c28] 28. Computer program product as recited in claim 27, wherein the locked frame rate corresponds to one of the incoming data streams.
- [c29] 29. Computer program product as recited in claim 24, wherein the display frame rate is a free running frame rate.
- [c30] 30. Computer program product as recited in claim 23, wherein the ports include,  
a video receiver port arranged to receive video data;  
a user interface port arranged to receive user input commands; and  
a network interface arranged bi-directionally connected to a network arranged to transceive packet based data to and from the network.
- [c31] 31. Computer program product as recited in claim 23, wherein the data processor is an integrated circuit.
- [c32] 32. Computer program product as recited in claim 23, wherein the display attributes are Extended Display Identification Data (EDID).
- [c33] 33. Computer program product as recited in claim 30, further comprising:  
computer code for interlacing a progressive scan



video image when the display unit is an interlaced type display unit; and  
computer code for bypassing the interlacing when the display unit is a progressive scan type display unit.